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IDEA 2708-65  
Copy 7 of 8

16 November 1965

**MEMORANDUM FOR:** Deputy for Technology, OSA  
**SUBJECT:** Full Pressure Suits for U-2 Aircraft  
**REFERENCE:** Memorandum from ASD/OSA to IDEA/OSA;  
dated 15 October 1965; Subject: Full  
Pressure Suits for U-2 Aircraft  
(IDEA 2603-65)

Pursuant to the request in the referenced memorandum, the following are the IDEALIST Division's comments and recommendations regarding the use of full pressure suits for U-2 Aircraft:

a. Comments:

(1) While the cost per full pressure suit is considerably higher than the cost per partial pressure suit, this cost difference should not be the only prohibitive factor for not buying full pressure suits for U-2 pilots. There is certainly no argument in the fact that these pilots, because of their mission, should always have the very best and latest of personnel equipment. Further, the undersigned believes that the cost per partial pressure suit could be reduced considerably if standard sizes were used, instead of individual tailoring these suits for each of our pilots.

(2) The U-2 pilots have been flying in partial pressure suits for up to nine years, a period that has seen the emphasis shifted to the development of the full pressure garments. Therefore, consideration should be given as to how much longer

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the partial pressure suit and its associated equipment will remain in production. For example, it is the undersigned's understanding that even now it is difficult for the field Detachments to obtain replacement face pieces for the helmet of the partial pressure suits.

(3) The referenced memorandum (paragraph 4) alludes to a requirement for aircraft modification for installation of a liquid oxygen system for the full pressure suit. There is a question in the undersigned's mind as to the validity of the requirement for this modification. The referenced memorandum's attachment (AP223-2 Full Pressure Suit Evaluation in the U-2 Aircraft), points out that there is a possibility that the full pressure suit's high oxygen leakage rate could be substantially reduced by modifying these suits specifically for the U-2 gaseous oxygen system. Further, this study was made in 1962, and since then there should have been considerable improvements made in the decreasing of suit leakage (i.e., the Gemini Program's use of full pressure suits). The undersigned, therefore, believes that the full pressure suit can be adopted to the present U-2's gaseous oxygen system without major aircraft modification.

**b. Recommendations:**

(1) It is recommended that the proposed evaluation of the full pressure pilots protective equipment be approved, and that two full pressure suits and associated equipment be purchased from the David Clark Company for this evaluation.

(2) These two suits should be designed so as to fit as many of the Edwards pilots as possible.

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(3) These two suits and any future ones should be designed to adapt to, and to take maximum advantage of the present U-2's gaseous oxygen system.

(4) The results of the above feasibility study will guide the IDEALIST Division's future recommendation for the use of Full Pressure Suits in the U-2 Aircraft.

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IDEA/OSA/ [redacted] (14 Nov 65)

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